North Carolina Public Health Response to Cleanup of Clandestine Methamphetamine Laboratories

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Law Enforcement

Seize lab

Post lab

Remove bulk chemicals

Notify Local Health Department (LHD)



Exposure Risk

Active labs

Greatest risk of adverse health effects

Former labs

Less risk

Risk dependent on:

- frequency of manufacture
- method of manufacture
- "Cook" habits



Contamination sources:

Corrosives – toxics – flammables

combustibles – reactives

Incompatible

- chemicals
- storage location
- containers







Improvised/incompatible lab equip.



Improper handling



Meth is used as an indicator for presence of other hazardous chemicals.

Long term health effects from residual meth have not been studied in-depth.

Limitations on setting a remediation standard.



Analytical vs. Health Based Standards

Detection limits

Feasibility

Conservative to be health protective

Research in progress

Calculated risk-based target



Minnesota Pollution Control Agency

Meth penetration of wallboard

Vertical and horizontal distribution on wall surfaces

Meth deposition on ceiling surfaces



National Jewish Medical and Research Center

Contamination from various cook methods

Decontamination of building materials

Encapsulation of contaminated building materials

Stability and recovery of meth on painted drywall



Meth exposures at a non-active lab

Wipe samples positive for meth on hands, clothing, etc.

Suspects

 $0.9 - 17.4 \, \mu g/wipe$

Children

 $0.2 - 1.18 \, \mu g/wipe$

Law Enforcement 0.5 – 0.93 µg/wipe

Pet dog

1.89 µg/wipe (fur)



Chemical exposures at "controlled" cooks

Surface contamination

Airborne exposures during cook

Distribution of contamination

24 hours after cook – various activity levels



24 hours after "controlled" cook

Airborne Methamphetamine (during the Cook: 520 – 760 μg/m³)

No activity:70 – 117 µg/m³
13 hrs after cook

Medium activity:107 – 170 µg/m³
16 hrs after cook

Heavy activity: 100 – 210 µg/m³



Decon of methamphetamine contaminated clothing

Test effectiveness by washing

Normal washing machine

Warm water w/ Cold Water Tide®

Denim cloth 1x = 99.4%

Cotton blanket 1x = 99.8%



Methamphetamine Exposures (hotel cook)

Teddy Bear: 12" away



Sweater: 3,100 µg/100 cm²

Underlying "fur": 2,100 µg/100 cm²

pH: <1

Contamination from smoking meth

(motel room)

Airborne levels: 300-1,600 μg/m³ (lab may exceed 5,000 μg/m³)

Surface areas: up to 35 µg/cm² (lab up to 860 µg/cm²)

Levels may be less if meth was inhaled



CA Environmental Protection Agency

Developed a reference dose (RfD) for methamphetamine" 2/09

RfD = concentration or dose at or below which adverse health effects are not likely to occur

Reflects toxicity and data uncertainty

No effects level / uncertainty factor





CA Environmental Protection Agency

"Assessment of Children's Exposure To Surface Methamphetamine Residues in Former Clandestine Methamphetamine Labs, And Identification of A Risk-Based Cleanup Standard For Surface Methamphetamine Contamination"



Methamphetamine Wipe Sample Clearance levels

Current meth cleanup levels in various states:

 $< 0.1 \mu g/100 cm^2 to 0.5 \mu g/100 cm^2$

NC does not have a cleanup level

Calculated risk-based target

 $1.5 \, \mu g / 100 \, cm^2$



Legislative Requirement

130A-284. For the protection of the public health, the Commission shall adopt rules establishing decontamination standards to ensure that certain property is reasonably safe for habitation.



Legislative Requirement cont.

An owner, lessee, operator or other person in control of a residence or place of business or any structure appurtenant to a residence or place of business, and who has knowledge that the property has been used for the manufacture of methamphetamine, shall comply with these rules.



N.C. Administrative Rules Methamphetamine Decontamination

10A NCAC 41D.0101-.0105

effective April 1, 2005

http://epi.publichealth.nc.gov/oii/pdf/SubchapterDRules72005.

pdf



Scope of Rules

Protect public health inside of reoccupied residences & places of business

No specific requirements for outdoor issues

Does not address other legal issues

-Personal effects left behind by tenant



Overview Rules

- LHD notifies property owner
- Prior to habitation, responsible party shall:
 - perform a pre-decontamination assessment
 - decontaminate the property
 - document those activities
 - submit documentation to LHD





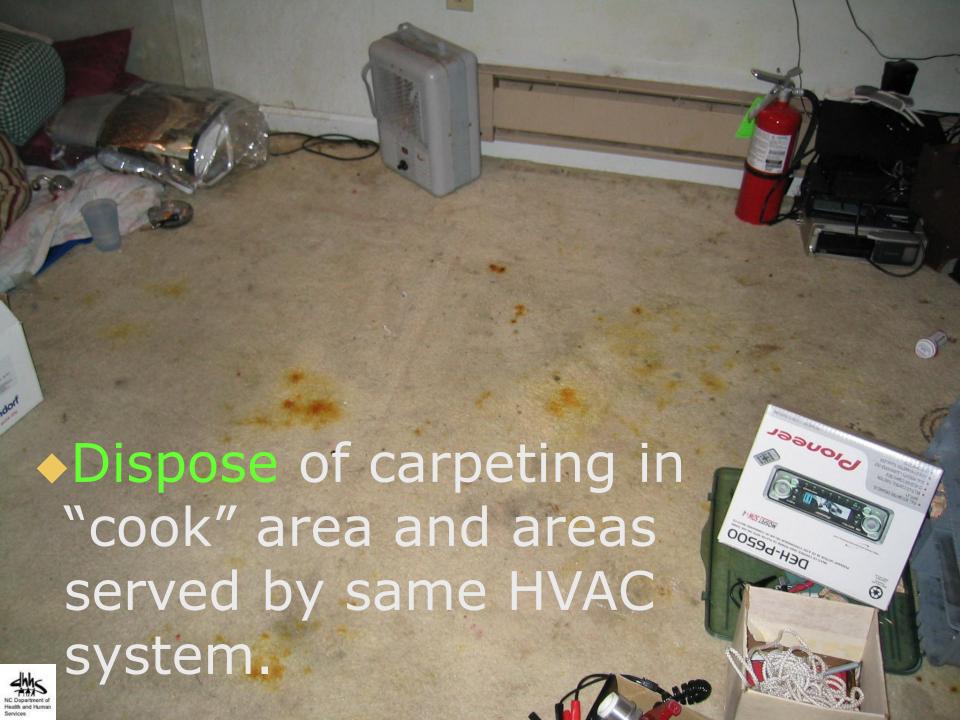




Decontamination

- Follow pre-decontamination plan
- Ventilate before and after remediation (fans)
- Machine washable porous itemswash 2x
- Dispose of non-machine washable porous items







Decontamination

HVAC system:

Replace filters, clean diffusers, grills & nearby surfaces

Clean non-porous ducts, replace internally insulated ductwork

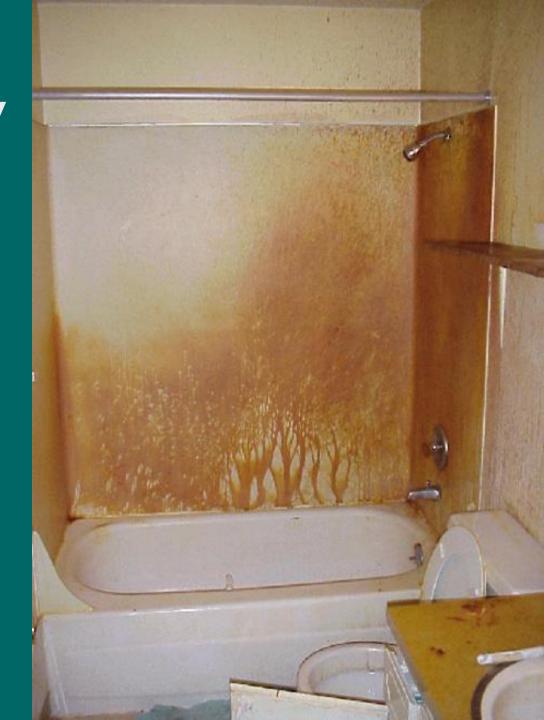
- Remove effected plumbing/clean
- Clean appliances not used in manufacture







After cleaning, completely remove and replace surfaces with visible contamination and/or staining









Decontamination

- Clean ceilings, walls, floors and other non-porous materials :
 - --scrub with household detergent
 - -- rinse with clear water
 - -- repeat twice
- Coat ceilings and walls with nonwater based paint after cleaning



Post-Decontamination

The responsible party shall:

- Notify LHD upon completion of decontamination process
- Provide a copy of the predecontamination assessment and documentation of decontamination activity to the LHD
- Retain documentation for 3 years



Post-Decontamination

The LHD shall:

- Review the documentation
- Notify the responsible party in writing if documentation is incomplete
- Retain documentation for 3 years



Enforcement

LHD may inspect prior to, during or after decontamination to enforce these rules.

Article 2 of 130A

Occupy without required clean up

- = Violation of GS 130A-25
- = Criminal Misdemeanor



NC Guidelines include:

- Hazardous Chemicals in Illicit
 Methamphetamine Laboratories
- Suggested contractor qualifications
- Pre-decontamination Template
- Decontamination Template
- References



Drug Enforcement Administration Environmental Protection Agency

Guidelines for Law Enforcement for the Cleanup of Clandestine Drug Laboratories - 2005 Edition

http://www.justice.gov/dea/resources/redbook .html



The Methamphetamine Remediation Research Act of 2007

Required EPA to develop guidelines for remediating methamphetamine labs

published Oct 2009



EPA

Voluntary Guidelines for Methamphetamine Laboratory Cleanup

http://www.epa.gov/oem/methlab.htm



NC Division of Public Health Occupational and Environmental Epidemiology

http://epi.publichealth.nc.gov/oii/meth/ index.html

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